

## Heavy industry

Materials handling industry systems





## Schmersal Group

The Schmersal Group has been developing and manufacturing products to enhance the safety at work for decades. Founded in 1945, the company has seven production sites on three continents and its own companies and distribution partners in more than 60 nations. In machine safety the Schmersal Group is one of the international market- and component leaders. On the base of a comprehensive product portfolio, the company's approximately 2000 employees develop and design complete solutions for the safety of man and machine.

Schmersal has a high level of industry expertise in the raw material and heavy equipment markets. In addition, the tec.nicum as an independent service division of the Schmersal Group offers a comprehensive range of different safety services, safety consulting and auditing.

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## Coal Control Gesellschaft für Automation mbH

Since 1995 Coal Control Gesellschaft für Automation mbH develops and produces control systems for the worldwide mining industry. The company enjoys an excellent reputation worldwide as a manufacturer of innovative, electrotechnical control and automation technology for the mining industry. Coal Control is one of the technology and innovation leaders in the field of recording longitudinal rips on belt conveyors in surface and underground mining.

The company's philosophy is focused on the high-quality requirements of customers who expect a well planned and smooth transportation of their valuable goods, as well as the implementation of customised solutions.

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## Scanmin Africa (Pty) Ltd.

Since 2000, Scanmin has become a leading provider of PGNAA analysers for the determination of elemental composition on conveyors in real time. Over the last few years, Scanmin has built a highly specialised team of scientists, engineers, mathematicians, statisticians and service engineers to competently assist its customers and partners in its process optimisation initiatives.

This is currently supported by more than 120 active online analysers from Scanmin, which are currently in use in the global raw materials and coal industry. The exemplary good quality and reliability of the Scanmin devices is clearly highlighted by the average up time of greater 95 % of all active systems in the field. The telemetric diagnostics of the Scanmin systems is the core of the exemplary high operational reliability, which is supported by the comprehensive support infrastructure and the service readiness of the company.

# Safety Technology for Bulk Material Handling



## Global sales partnership

The Schmersal Group, Scanmin Africa and Coal Control Gesellschaft für Automation mbH have entered into a global distribution partnership for more safety and common solutions in the worldwide bulk solids production. The product portfolios of the three companies make a meaningful addition to many industrial sectors, enabling each of the three partners to offer end-to-end solutions to customers in the global raw material and coal industry.

## The joint solution portfolio

Schmersal produces heavy-duty switchgear for the global raw material industries – from raw material exploration through raw material extraction to raw material processing. Schmersal focuses on the provision of security solutions and concepts for the protection of employees and conveyors. Coal Control extends this safety approach with concepts for protecting the conveyors against belt splice rip, longitudinal rip and monitors the steel belts in order to sustainably protect the service life and maintenance costs of these capital goods. Scanmin analyses the elemental composition of all bulk materials on the conveyor belt in real time with its Gamma Spectral Analyzer and supports the coal, cement, mineral and steel industries in sustainably improving their processes and overall quality assurance.

## Consultancy Services

The combined offer of the three companies also includes extensive consulting services. This unique combination of common machinery and plant safety, safety technology, investment protection and process and quality assurance can be offered by the three companies Schmersal, Scanmin and Coal Control to their customers around the world.

**1 ACCESS CONTROL**

For service-, maintenance- or cleaning access, at drive- or reversing pulleys, transfer stations, or belt loading systems. Depending on the safety requirements, access will be granted only if the conveyor drive stand still or for service / maintenance reasons, with reduced speed for the entire conveyor system.

**2 LEVEL CONTROL**

On belt transfer stations or in silo installations, the level of bulk goods such as granulates, powder or seeds often need to be monitored. For this application, Schmersal has developed a level switch for heavy-duty applications. Depending on the application the user selects either electro-mechanical or non-contact operation.

**3 COMMAND CONTROL**

Dust, varying temperatures and an often "rough" handling: command devices installed on transport and conveyor plants must be able to permanently withstand harsh conditions. Our robust command devices and indicator lights, joystick switches and surface-mounted enclosures have been specially developed for such applications and provide for a safe switching.

**4 SIGNAL CONTROL**

In the "Safe Signal Processing" you find safety relay modules and networks for a variety of tasks for safety technology (such as for emergency stop systems), as well as centralised and distributed microprocessor-based systems. These include for example, configurable and programmable safety controllers and safety networks, which are characterised by a high degree of flexibility.



# Safe switching devices and networks

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## PROCESS CONTROL QUALITY CONTROL

Scanmin manufactures PGNAA and natural gamma analysers to measure elemental compositions of raw materials such as H, C, O, Si, Al, Fe, Ca, Mg, S, Ti, Na, K, Mn, K and Cl etc. on bulk conveyor belts. The elemental composition can be measured directly online in real time for various industrial processes like coal, cement, minerals or steel in production processes, material blending or contractual supply. Elements with its own natural gamma signature like Potassium, Uranium and Thorium and their linked correlation to other elements can be determined online via natural gamma analysers.

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## STOP CONTROL

Our pull-wire emergency-stop switches guarantee a reliable emergency stop function with wire breakage monitoring on conveyor plants with single-sided effectiveness over a distance of 75 m on one side and 2 x 50 m on both sides. All pull-wire emergency stop switches are insensitive to external influences such as torsion, vibrations and temperature variations.



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## BELT CONTROL

Belt alignment switches monitor the straight running of conveyor plants. If the conveyor belt moves off-centre from the drive and pulleys the switching devices trigger. With staggered switching a pre-warning for example is initiated with 10° deviation and the conveyor belt is switched off for example at 25°. Individual staggered switching is available upon request.

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## ACCESSORIES

For the installation of the safety devices on the machine we offer a tailor-made system concept of accessories for belt alignment switches with 32 and 90 mm roller diameter or matched fittings for single sided or dual sided emergency stop wire-breakage monitoring.

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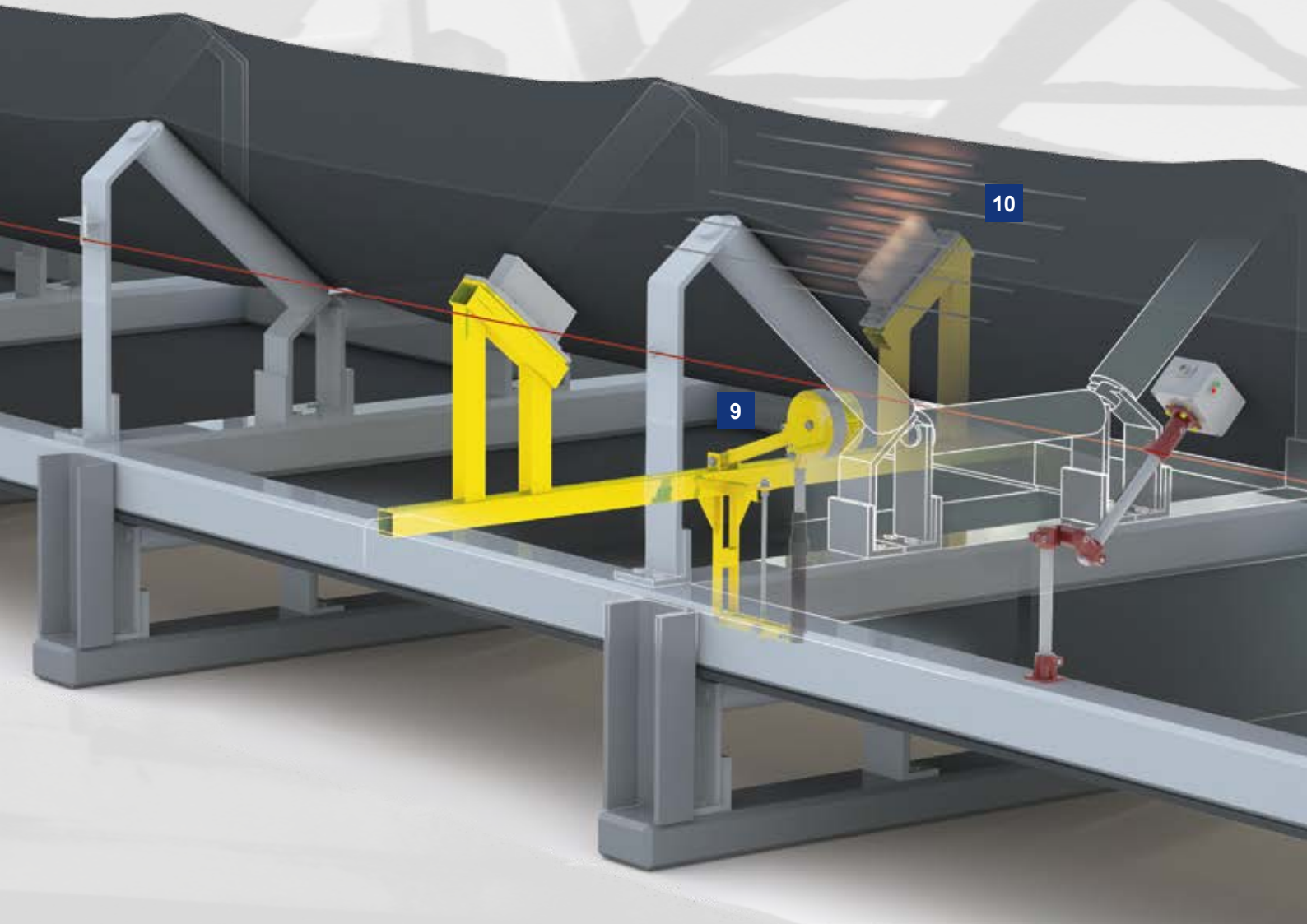
**SPEED CONTROL**

Speed monitoring on the belt and the conveyor system to limit damage on still conveyor systems and for the fill level and wear optimisation on chained conveyor systems including belt slippage detection.

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**SPLICE CONTROL**

is a measuring system for the monitoring of conveyor belt connections. It carries out precise measurements of every belt connection and signals any deviations in the length of the connection.



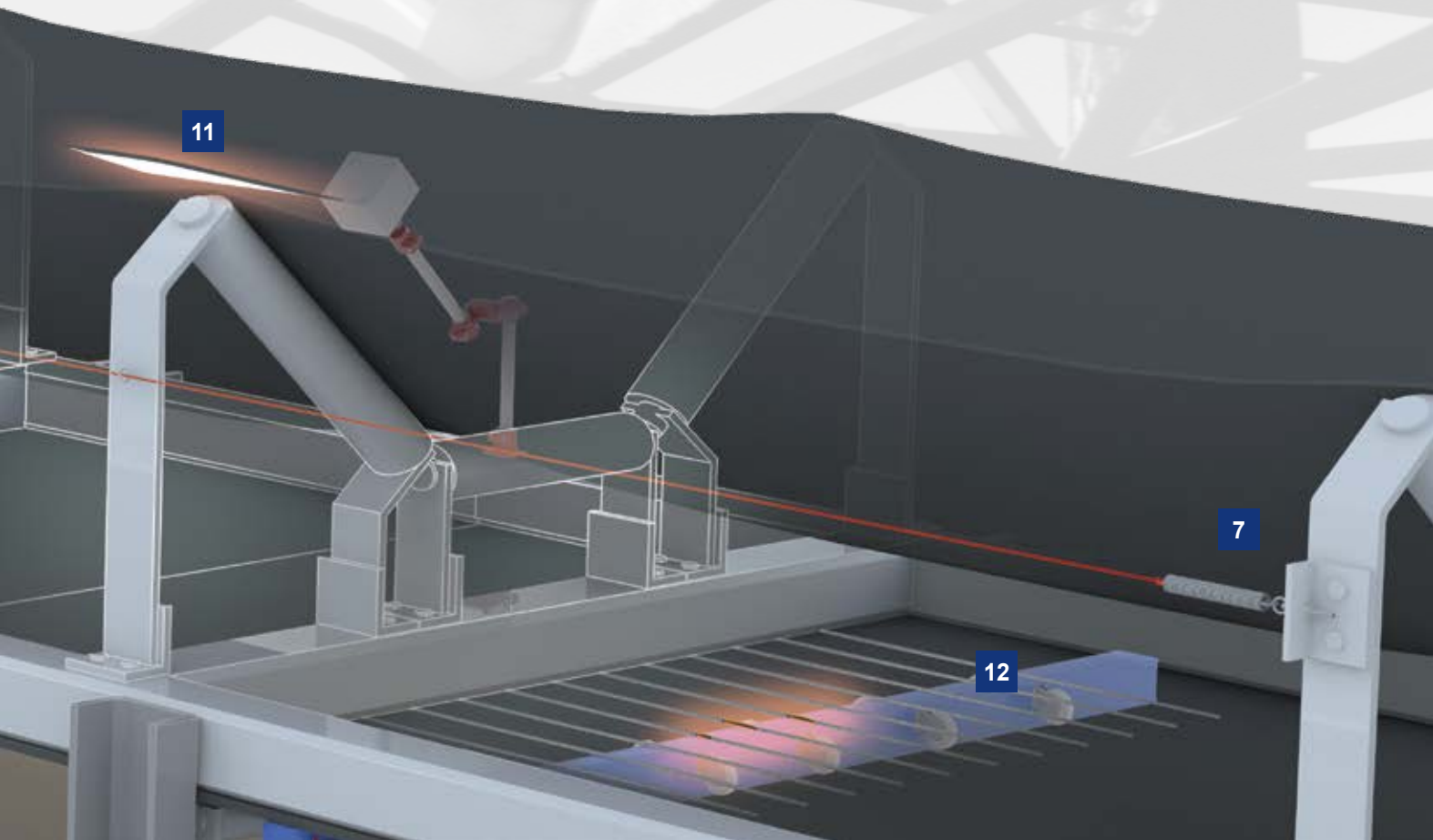
## Belt rupture and belt split monitoring

### 11 RIP CONTROL

is a monitoring system for early detection of longitudinal slits in your conveyor belt. It monitors the danger points where the feed and discharge of the belt takes place which is where the chance of splitting is the largest.

### 12 CORD CONTROL

is a tensile support monitoring system and allows precise diagnose of the condition of the utensil support in your steel cable conveyor belt system. It signals in good time any changes in the steel cable and the tensile strength of the connected conveyor belt system.



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#### Machine safety on conveyor systems

- Machines and personnel protection
- Positional acquisition, command and signalling devices, safe signal processing

#### Process safety on conveyor systems

- Process and investment protection
- Conveyor monitoring, automation and control technology

#### Process control on conveyor systems

- PGNA and gamma analyzers
- Measurement of elemental compositions of raw materials



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